

Is Your Yard a Nitrogen Free Zone?

People are generally afraid of fertilizers. I'm sure at one time or another we've all burned a plant with too much fertilizer, and our response is to not fertilize at all. Fear generally comes from a lack of knowledge. I'll try here to dispel some of that fear and help to make you a better gardener.

16 essential elements are required for proper plant growth. Three of these are Nitrogen(N), Phosphorus(P), and Potassium (K-Potash). They are required in the largest quantity. They are represented on the fertilizer bag as a percentage of weight, such as 15-15-15. This example is known as a balanced fertilizer because it contains 15 percent of each N, P, & K. You may notice the percentages only add up to 45 percent. The other 55 percent is filler material, inert material used to aid application, which also brings the fertilizer up to standard industry weights. The other elements are needed in smaller quantities; they are also listed on the label.

Books generally give fertilizer requirements of individual plants in an actual pounds per year format. For example, a mature Citrus tree may require 5 lbs of actual Nitrogen per year. If we use our 15-15-15 example (with 15 percent nitrogen), a 50 lb bag contains 7.5 lbs of actual Nitrogen(15% of 50 lbs), each pound would have .15 lbs of nitrogen. If we divide 5 lbs by .15 (15%), we get 33 lbs of 15-15-15. Three feedings spread out over the year, 11 lbs each, fulfill our requirement (lbs required per year/ percent of nitrogen on bag).

It doesn't have to be this complicated. I generally feed a little bit, more often, and only on plants that show deficiencies, or plants on which I want to promote growth.

In order to aid in our understanding, let's look at the role in plant growth each of these elements play. Nitrogen is a key element in chlorophyll. As you may know, chlorophyll makes plants green and performs the role of turning sunlight into food or energy for plants. When a plant is nitrogen deficient it will appear yellow overall, lack vigor, and have a rather thin canopy. Phosphorus and Potassium provide the nutrients needed for good root development, disease resistance, and flower and fruit production.

Fertilizers are available in a dry granular form, which you

sprinkle on the root zone and water in, or water soluble, which dissolves in water and is poured on to the soil. Dry forms are usually the most cost effective. They're generally easy to apply on planted landscape areas, where watering will dissolve the granules and release nutrients for the plants. Water soluble fertilizer is available instantly to plants and is ideal for potted plants, either as a soil drench or foliar application. Burning is almost impossible if used according to directions. The main disadvantage is cost, being much more expensive than dry fertilizer. Also, being water soluble, nutrients leach out at the next watering, requiring more frequent applications. Granular fertilizers can burn potted plants because the concentration of nutrients is much greater. These fertilizers are also available in slow release forms that don't burn. Typically, the granules are coated to slow the release of nutrients. Osmocote is the most familiar, however it is designed to release at higher temperatures and may not release quickly enough in cool areas or in the shade. Find ones that dissolve at any temperature for best results.

The right balance of nutrients is key. Too much as well as too little can be detrimental. Most nutrients are soil stable; once put down. The only exception is Nitrogen, which is water soluble. Because we water so much in Southern California, it must always be replaced. As a result Nitrogen is the number one deficiency found here. This makes regular feeding a necessity for maximum growth and yields.

How to apply dry fertilizer is also important. It is best to apply above the feeder roots, typically beneath the drip line of the plant. This is several feet out from the trunk to where the branches tip are. A common mistake is to pile fertilizer on the trunk of the plant, burning the cambium layer. If applied by hand, sprinkle lightly on soil. Better yet, use a whirly bird applicator, which distributes the granules very evenly.

When to feed is determined by the plant, nutritional needs vary from plant to plant. Generally, plants can be fed when actively growing. A typical schedule is three times a year: spring, summer and fall. Exceptions are mature plants that are healthy, on which we don't want to promote a lot of growth and new or sickly plants which can be fed monthly until they are healthy or up to size. Healthier plants produce better flowers and more flavorful fruit. They generally have fewer insect and disease problems, although too much feeding can push succulent new growth that will be more attractive to insects.

Water soluble feeding must be done more frequently, at least every two weeks. A half strength application every week is better. Remember consistency counts.

I frequently hear people say that their Citrus or Bougainvillea haven't grown since it was planted three years ago. When I ask about their feeding schedule, the response is usually none. It's true these plants are easy, once established, but remember that they are force fed by nurseries and need help to get established. Feeding can help promote strong roots.

Like everything else in life, nothing is as simple as it seems. Feeding is no exception. Soil is a key factor in feeding. If your soil is heavy clay or straight sand, that must be taken into consideration. Clay holds onto nutrients so plants can't get to them, where sand leaches easily. Balancing the pH can also make the nutrients more available. The healthier your soil, the better your fertilizer works. Organic matter holds the nutrients so plants can utilize them. Everything works together. In nature, leaves fall to the ground and compost on site, replenishing the soil of nutrients. When we prune and rake excess material away, that cycle is disrupted. By adding organic matter, we can keep our garden soils healthy. In fact, healthy garden practices can eliminate the need for feeding altogether, except for the heaviest feeders, such as Brugmansias. Also remember that these changes take place slowly. It can take up to three years to get a good active soil established. So be patient, the rewards of a healthy soil are great.

This brings us to organic fertilizers vs. synthetic fertilizers. Oh, I can hear it now. The purists will tell us synthetics are poisons. In reality, all nutrients are absorbed in ionic form, and plants can't tell the difference between the two. Organics are actually better for your soil, but release slowly. So patience is required, money also, as organics are more expensive. Common organics are: blood meal- about 13 % nitrogen, Cotton seed meal - about 6-4-2, and manures - about 1-1-1. Manures can also contain high levels of salt and must be well composted before being used. The burning associated with manures is usually due to these high salt levels. The heat being given off by the decomposition process can also cause damage. Synthetics are cheaper, easier to apply, and available instantly to plants. But, they don't do anything for the soil. My favorite general purpose fertilizer is a combination; a synthetic and organic mix

(12-8-4). It has 6% Nitrogen available now , 6 % for later, and it's strong enough to feed woody plants but gentle enough for annuals and perennials.

It can seem overwhelming, with all the choices available, but ultimately you have to find a system that works for you. Know your plants. Please consult as much literature as possible, as much has been written on the individual feeding requirements of plants. Some plants are very sensitive to fertilizer, typically, those that come from areas with very deficient soils. Many Australian and California natives dislike phosphates. As with most things, moderation is the rule. If unsure, go slowly, more can always be added later. Now go forth and feed hungry plants, armed with the basics of fertilizing.